HPS 2502  History of Science I
Peter Machamer, pkmach@pitt.edu
Phone: 624 5896 (home: 687 4413)

Books ordered:
David Lindberg, The Beginnings of Western Science
*Plato, Timaeus
*JL Ackrill, A New Aristotle Reader
*Galen, Three Treatises on the Nature of Science
*Lloyd, Hippocratic Writings
Ptolemy, Tetrabiblos
De Lacey O'Leary, Arabic thought and its Place in History
David Lindberg, ed. Science in the Middle Ages
Edward Grant, Foundations of Science in the Middle Ages
*Grosseteste, On Light
*Hugh of St. Victor, Practical Geometry
*The Book of Causes
*N Copernicus, On the Revolutions of the Heavenly Spheres
*Kepler, Epitome of Copernican Astronomy
Kepler, Concerning the more certain Fundamentals of Astrology

You might also consult E.J. Dijksterhuis, The Mechanization of the World Picture

From the secondary sources you ought to read the relevant sections from the works listed above, before the given topics are covered in lecture.

Note bene: All these books are good and valuable resources, but the ones marked with an asterisk (*) are primary sources and belong in any educated person's library. All other texts for the course will be provided by photocopy and available for copying in the HOS I course box, in 1017CL.
**Syllabus:**
*These will be updated*

26 August

**Introduction**

2 Sept.

**Plato, *Timaeus***

9

**Aristotle, motion and the cosmos**

*Met* Book I, Chaps. 1-2; Book IV, Chap. IV; Book V, Chaps. 5, 6; Book VII, Chaps. 1-4

*Physics* I, Chaps. 1, 2, 7, 8; II, Chaps. 1-4, 7-9; IV Chaps. 4, 10; VIII Chaps. 6, 10.

*De Caelo* Book I, Chap 2, 9

16

**Aristotle, zoology and philosophy of science**

(Allan Gothelf)

*Post Anal*, Book I, Chaps. 1-4; II Chaps. 10, 12, 19

*Parts of Animals* Book I, Chap I, Book II, Chap I

*Generation of Animals*, Book I, Chap. 21-23, Book II, Chaps 1, 3.

23

**C. Ptolemy and Greek astronomy**

*Almagest*, Book I, 1-9, Book III, 1-9;

V, 1; Book IX, 1-3

*Tetrabiblos*, Chapters 1-5.

30

**Atomism and its fate (JE McGuire)**

Epicurus, "Letter to Herodotus"

Lucretius, *De rerum natura*, Book I, sections 1 & 2

W. Charleton, *Physiologia: Epicuro-Gassendo-Charltoniana or Fabric of science natural Uppn the hypotheis of Atoms* (1654), Bk II, Ch III, sects I, IV;

Bk III, Chap XVI (loadstone); Bk IV, Ch II (motion)
<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>7 Oct.</td>
<td>Rewrite 1 due Hippocratic papers Galen</td>
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<td>14</td>
<td>Greek Mathematics (Ken Manders)</td>
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<td>21</td>
<td>Islam</td>
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<td>Islamic papers</td>
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<td>Avicenna, The healing, Metaphysics &amp; The Deliverance, Psychology (in Hyman and Walsh, eds Philosophy in the Middle Ages)</td>
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<td>Averroes, A treatise Concerning the Substance of the Celestial Sphere (in Hyman and Walsh)</td>
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<td>O'Leary, Chapters I, II, V, XI.</td>
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<td>28</td>
<td>Impetus and Medieval Motion</td>
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<td>Selections from M. Claggett, ed. The Science of Mechanics in the Middle Ages</td>
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<td>Part II: Medieval Kinematics, Chapters 5 &amp; 6; Part II; Medieval Dynamics, Chapters 7-10.</td>
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<td>4 Nov.</td>
<td>Medieval Causality &amp; some mathematics</td>
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<td>The Book of Causes</td>
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<td>Hugh of St Victor, Practical Geometry</td>
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<td>11 Nov.</td>
<td>Optics</td>
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<td>Ibn al Haitham, (Alhazen), R. Grosseteste, &quot;On Light&quot;</td>
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<td>R Bacon, Opus maius (selections) (in Hyman and Walsh)</td>
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<td>Kepler</td>
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18  N. Copernicus  
*De Revolutionibus*, Book I, 1-12, Book III, 1-12; V, 1-10 (Optional) (Book VI on CD Rom)

25  J. Kepler  
*New Astronomy*, Part I  
*Harmony of the World*, Book V, Chapter III  
Epitome of Copernican Astronomy  
Fundamentals of Astrology

2 Dec.  G. Galilei  
*Sidereus Nuncius* (also on CD Rom)  
J. Kepler, *Conversation with Galileo's Sideral Messenger*

**Exam for HPS graduate students**, Date to be chosen by students
Course Requirements

Topics for papers will be given out the week before they are due. You may, after consulting with me and receiving permission, write on a topic of your own choosing.) Papers may be a maximum of 4 pages (double spaced, 12 point, Times font) in length.

If you receive less than an A-, the papers must be revised and re-written*, but rewrites must be turned in as marked on the schedule. If you receive an A or A- you may also re-write.

*Grades for papers and their rewrites will be averaged.

Students may choose to do a presentation in class (of some of the material for that day, e.g. a proof from Ptolemy) as a substitute for one paper. This must be arranged at least a week in advance, and must be previewed with me, by the Monday of the week of class.

Late papers will not be accepted.

Most often, class will be divided into three unequal parts. The first 10 minutes or so will be class review of what happened the week before. The second part will be a general lecture. The third part, the last half hour or so, will be devoted to looking in some detail at some of the readings assigned for that day.

Students are expected to participate in the discussions comprising the first and third parts. 10% of your grade will depend on class participation.